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THE PLOTTER

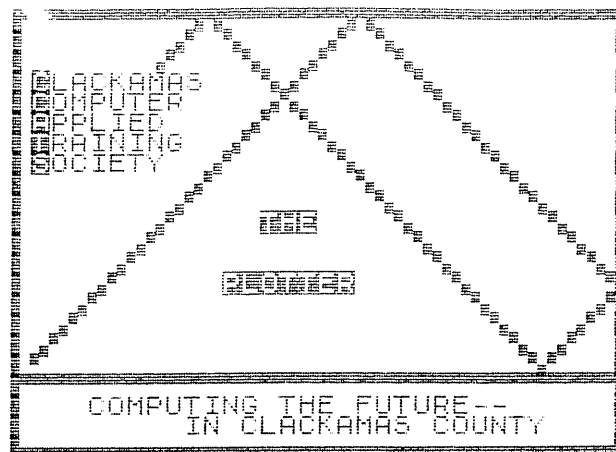
CLACKAMAS COMPUTER APPLIED
TRAINING SOCIETY
NEWS LETTER

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DECEMBER 1993



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MEETING

The DECEMBER meeting will be:

on: SUN., DECEMBER 19, 1993

MEETING 2:00 TO 5:00 P.M.
at: Rod Gowen's home
14784 S. Quail Circle
Oregon City

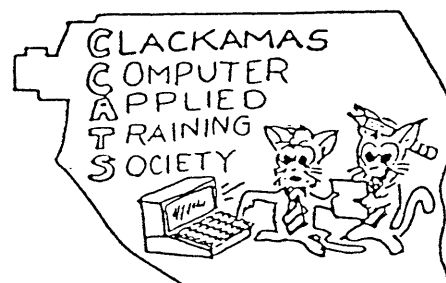
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Celebrate the Season
1993



Season Greetings From CCATS
and THE PLOTTER



RE-INKING YOUR RIBBONS

(Reprinted from ZXSir Clive Alive, Volume 3, No. 3, Fall 1993 With Editorial comments by Don Lambert and a Note by Rod Gowen)

I know that Abed Kahale did a little piece on re-inking ribbons, but this is from a different source and does give quite a bit of background information.

The source is FORMAT (Vol 4, #3, November 1990) which is a U. K. based newsletter for the SPECTRUM and SAM users. (Don't ask me what SAM is?). Terms and prices are in the lingo of the U. K..

RE-INKING:

RI8B0N RESUSCITATION - ASSISTANCE FOR THE IMPECUNIOUS OR DOT- MATRIX DISASTER?

By: John Wase

Do you re-ink your dot-matrix printer ribbons? I do, and (I think) save myself quite a lot of money in the process. However, before you dash out to buy a bottle of Quink, let me mention that there are quite a lot of snags that you really ought to hear about.

Firstly, there is the ink. This should, of course, run freely (but not too freely), and

give a good dark impression. More subtle are the requirements which intimately concern the mechanism of the print head. As you probably know, the print head rapidly fires and re-fires a series of pins (most usually nine, eighteen or twenty four, depending on the quality, and cost of the print@r, forcing them onto the ribbon, and therefore making inky dots on the paper behind. Anyone that has watched this will be struck by the speed at which it all happens (you can't see the pins being fired; it's all far too quick) and the more curious may well have burned their fingers on the top of the print head, which can get very hot indeed. When you think about this a bit more, you can see that the lubricating, clogging and evaporative properties of the ink will be very important in respect of the ultimate life of the print head mechanism. And a dead print head usually means a new printer - they are rarely economical to repair. So the use of inappropriate inks (like the bottle of Quink) is bad news.

Let us look at things now in a little more detail. Don White, Professor of Chemical Engineering at the University of Arizona, has done a bit of research into this subject, finding that the life of a print head can actually be significantly extended if ribbons are regularly coated with a lubricant-based ink of the proper type. As Don says, the elements involved in the printing process are the print head needles, the nylon fabric ribbon, the ink and the paper. The mechanics of the prowess, too, are important in respect to ribbon life; they depend, in turn, on the strike pressure of the print-head needles, the contact time of the ribbon and the

paper. The ribbon properties (ink absorption and affinity, the ink properties (viscosity, darkness) and the paper properties (porosity and ink absorption). To make things even more complicated, the print-head consists of electromagnetically fired metal needles individually based in plastic cylinders: the strike pressure of the needles can vary from 5 to 280 pounds per square inch, and contact times with the paper (which are also a function of the printing speed and strike pressure range from 10 to 200 microseconds. Nylon fabric is the most widely used material for ribbons - the ribbon has good ink absorption characteristics and resistance to wear. To improve the ink absorption onto the nylon ribbon, the woven fabric is subjected to texturization (the fibres are thermally treated, transforming the filaments into highly twisted structures to improve porosity, and then a high polarity polymer coating is added to the fabric surface to further improve affinity for the ink. High speed printers and twenty-four pin models use high-density ribbons with less porosity but much improved wear resistance - so don't try swapping ribbons between nine and twenty-four pin machines - you'll probably damage print-heads.

The ink, of course, is the key component. It must contain a permanent dye with a minimum of insoluble particles (non-abrasive and less than three microns maximum diameter), and it must neither react chemically with nor degrade in any other way the print-head mechanism. That means that it must be compatible with stainless steel, phosphor bronze, beryllium, copper, nylon, acetal,

polyethylene and polypropylene. It must also contain an ink-compatible additive which is stable and which will not form

funny precipitates on the print-head, but which will form a thin protective coating on the metal surface, lubricating the works well over the whole operating temperature range. The only practical additive which meets these requirements is a silicone of one sort or another, and an ink without such an additive is pretty useless. A number of printer manufacturers advise against re-inking ribbons. This advice is valid if traditional clay-based printing inks are used, for these will dry on the needle cylinder walls and clog the print-head. However, this will not occur if the proper ink is used. Indeed, Don has positive proof that head life can be extended with regular use of a proper ink which contains the appropriate lubricant. Finally, to give you the complete low-down, let me mention that the key elements which affect ribbon and print-head life are the needle impact pressure (which can, to some extent be varied by the printer user) and frequency of impact (which can not), the friction coefficient between needles and ribbon, and the print-head impact temperature, which are both profoundly affected by the presence and properties of the ink. This is because the friction coefficient between the matrix needles and the ribbon is very important. A large proportion of the strike energy is transformed into heat and the material

properties of the nylon ribbon are themselves very sensitive to an increase in working temperature. With repeated use, the needle temperature can rise near the melting point of nylon (488 degrees F) causing the ribbon to soften

under the needles. The situation is made worse because nylon is a poor conductor of heat. However, as long as there is plenty of lubricating ink, adhesion between hot needles and nylon surfaces is prevented, so reducing wear. The presence of ink in between the filaments

dissipates the impact energy. Of course, once the filaments begin to dry out, the impart temperatures rise sharply, causing rapid degradation of the fabric, a hole in the ribbon and possibly a ruined print-head. I tried out two very different re-inkers. The first was "Caspell's "Ribbon Refresh". This comes as an aerosol canister at less than 10.00 pounds, including postage. The other device is the "Maxiprint Ribbon Re-Inker" from AC Enterprises. This Varies in price (there was a special offer when I got mine) but is likely to be at least 40.00 pounds. It consists of a box full of bits and pieces.

"Ribbon Refresh" first: To use this, you pry off the lid of the ribbon. This is usually a molding with a number of plastic pegs in it which fit into holes in the raised edge around the base. Great care is needed, as the pegs on the lid are easily broken off. The use of a ribbon where pegs are missing on the plastic box can result in the ribbon jamming and doing in the print-head. Great care is also needed because, as you pry the lid off, a spring-loaded gadget which is difficult to replace often shoots out. Beware: Once the lid is off, the ribbon is revealed as "concentrated" fabric within the container. Put the open container, still with the ribbon inside, on a large sheet of newspaper, preferably out of doors. Put the tube (like the one supplied with WD40) into the aerosol press and spray.

Too little and the resulting print has light and dark patches. Too much and it's a runny mess. Don't forget to turn the knob after inking to bring the bits from outside and the ends into the middle, and to spray those, too. It's best to have several ribbons and do them well in advance, so that the ink soaks well in and the lightest hydrocarbon evaporates: I speak from bitter experience. Unless you take care, it can be a very messy job. Having said that, I've used "Ribbon Refresh" successfully since it was introduced, and have saved myself a fortune on replacing ribbons. True, the ink is not so black, nor does it last so long, but one can't have everything, can one? The "Maxiprint Ribbon Re-Inker" is a horse of a different colour. The base of the box is slotted, and you have to assemble and screw a number of bits into this in order to clamp your particular shape of ribbon tightly. You then mark the start of the ribbon with a little dab of "Tippex" (ED. NOTE: White-out), open the ink cartridge and turn a handle which is slotted onto the ribbon drive. My Epson FX80 type of ribbon are the least conveniently accommodate, and I find it difficult to get the clamps tight enough. The loop around the cartridge was not as tight as I would have liked. In opening the cartridge, I got the stuff all over my hands. The ink did not run as freely as I would have liked and, I couldn't control it as well as I had hoped, so that the first ribbon seemed over-inked, whilst others had the ink applied rather patchily. The winder kept coming off the ribbon. Whilst it was stopped, the ink kept going, with a great big patch. It also took a very long time to wind the ribbon right through to the white "Tippex" mark again. Much of this was

beginners' clumsiness, but I would not, for instance, recommend this to the Junior School teacher whilst the class was waiting. So what were the results like? Marvelous, actually. They exceeded my wildest expectations. The ribbon Was super-black. I have used one for ages in an Epson RX80 (you remember, the very old one) with Tasprint at double height to print leaflets and handouts. And still it carries on and on, as fresh as When I first re-inked it. I get the impression that it lasts quite a bit longer than a new one.

So what's the verdict? At first I thought this Was going to be a one-horse race: "Ribbon Refresh" is so much cheaper and I found it so easy. However, the results, though satisfactory, are not nearly so impressive as those for the "Maxiprint" device. For the amateur, therefore, with a low rate of ribbon usage, I would recommend the Caspell can, for here one would need to buy only five or so new ribbons before the break-even point was reached. However, if you are a fairly large user of ribbons (more than twenty), like a small business office, or a teacher in a computer-aware school, and particularly if you need an especially good impression or if you use an awful lot of graphics, then the "Maxiprint Ribbon Re-Inker" could suit you better.

EDITORIAL COMMENTS:

I thought that the background on what to avoid is good. One way to test ink for whether it is oil based or water based is to apply a tiny amount to a jar of water and shake it up. The water based will dye the water uniformly while the oil based will form droplets of the ink and oil. Paul

Holmgren has told me of re-inking ribbons by using a piece of plastic and holding it folded over the ribbon and then using an electric screwdriver to run the ribbon through the plastic With ink on it. I have tried that but it seems that I need another hand to do it. That way does not require opening the ribbon cartridge (box) Which is not that big a deal with the ribbons for my Epson LX810. What is needed is a way to hold the entire assembly including holding down the switch on the electric screwdriver. I have heard of using mineral oil and also WD40. Once in the past I got a bottle of re-inking ink from RMG but looking at the ink I have hesitated to try it since I would be Weeks getting the ink off of stuff that was not to be inked. If interested in that, the next time you order from RMG ask Rod Gowen about the ink. 0/0

NOTE FROM RMG:

If you are interested in re-inking your own ribbons, RMG sells both the ink and the machines to do the job without the hassle. The ink is fully compatible with all dot-matrix printers and comes in a wide variety of colors as well as the thermal transfer types. Also, if you would be interested in building your own re-inking machine for about \$10, keep reading THE PLOTTER. We will be re-printing an earlier article that shows you how to do this using one of a variety of driver motors. From a rotisserie motor for a BBQ grill to an old electric timer or clock motor. The only piece that must be purchased to fit your personal need is the driver kit for the type of printer ribbon cartridge you are using.

RMG UPDATE NEWS FOR NOVEMBER 1993

VOLUME 5 NUMBER 12

**** RMG NEWS ****

Hello again! Did you notice our new "look"? We hope that the change in the look is making it easier to read. We continually strive to make things better for ourselves and for you. As this is the December issue, we have decided to continue all sales that were running in November for the rest of the year. If you had not ordered and thought that the sale had ended, now you can still order and get the sale prices. We are also including, as our gift to you for your continued support, a coupon good for 15% OFF on your very next order from RMG. We do have to make one thing clear as to the use of the coupon—IT CANNOT BE USED ON ANY ITEM FROM THE PAGES MARKED CNSN-#. As these are consignment sales pages, we have no way to discount these prices. Anything that you order from our regular price lists will be discounted by the 15% if you enclose the coupon with your order. We are also enclosing a copy of our order form for your convenience. If you use it or a copy of it, it will speed up the processing of your orders.

We hope that the list of newsletters and magazines that are still available to TS users was of some value to our readers. It seems I get at least 1 or 2 calls a week asking if there are any of these still being printed. Now you know and we hope you will spread the word to your TS friends. If we missed one that you know for certain is still in publication, please send us the name and address and we will update our list and print an updated list in a future issue of RMG UPDATE NEWS.

If any of our readers have been waiting for one of Jack Dohany's dual 2068/Spectrum eprom kits, it seems that they will never arrive. The last time I spoke to Jack, he still had not repaired or built a new eprom burner so was unable to supply the eproms. We have issued refund checks to those who had paid in advance. We do not believe we will ever get any, so we will no longer accept orders for them. Other than this item, all of the Jack Dohany items are still available through RMG.

If you are collecting older TS and Sinclair items, feel free to call and check with us for any item that you do not see in our price lists. There are times when we have items that do not appear in our regular price lists. Some collectibles and hard to find items are in our storage area and may not be in inventory. We may even have heard of some special items that one of our customers has for sale but did not want to put them in our consignment sheets. We will do our best to help you if we can.

If you need any TS or other computer product repaired, please check with Dan Elliott of Computer Classics. He does excellent work, relatively fast and at very reasonable cost. His address and phone number are as follows: (Do not call after 6PM CST)

Dan Elliott
Rt. 1, Box 117
Cabool, MO 65689
314-739-1712

KEEP WATCHIN' FOR MORE NEWS! Rod Gowen, Owner, RMG Enterprises
14784 South Quail Grove Circle, Oregon City, OR 97045
503/655-7484 8AM-6PM PT * FAX/VOICEMAIL: 503/655-4116 24 HRS

WHY CODES?

by Bill Dunlop

It Worked! I got a response from the last article. Questions are a sure sign that someone out there actually reads what I wrote and wonders "What are the possible applications of this?"

A small computer in a business has some advantages and some disadvantages. From a practical point of view the savings in cost of the computer and print equipment, the software and the time needed to learn their use makes the 2068 a good choice for the one-person business.

I have seen people lose their business because most of the start-up money went into a "computable" type of computer and software rather than into a sellable product. I spent less than the price of their software alone for my entire system including disk system (Larken) and a reasonable large printer and interface.

Don't get me wrong, though. There are disadvantages too. Big ones! The limited amount of memory space being the biggest of all. That's why Tom Woods (of ProFile fame) and Randal Wurley in "Programming For Real Applications" suggest that when using a database "use coded entries to save valuable memory space".

My article on "B.A.R." code was a suggestion that instead of very long product identification numbers a few symbols could be used. Using the upper and lower case alphabet in addition to the numbers 0 thru 9 save a very large "base" to work from, yet all were already known to me and need no extra training time to memorize or to teach to any part time help that I may use.

So, now a few examples.

Business "A" manufactures a welded steel assembly for a larger product for a "big" buyer. He is required to keep records of not only how many he

delivers but data on who welded it and when it was done, what tensile strength metals were used and where he purchased the material used. A serial number could be used and stamped on each piece as it was completed. The records all could be entered into his database and referenced by the serial number.

A large number is needed. Using the "B.A.R." idea he could stamp "#0aA1" (for example) and his database would still pull all of the data as it was entered for this individual assembly. The welder has only 4 digits to remember to jot down onto his job ticket, pay card, materials invoice etc. A long number may get forgotten or transposed easily, but 4?

In a small database every digit used is memory space unavailable later.

Business man "B" operates a small gift shop with a lot of craft items consigned. He needs to put a small sticker on every item that tells him on his monitor who consigned the item, what the item is, what the selling price was to be, how much commission was to be retained by him and whether more are available. A receipt for each consignee and an invoice for instock delivery needs to be made to satisfy many of the governmental taxing agencies. "B.A.R." to the rescue again.

Home member "C" has been given the impossible task of putting tags on each item for a large "Full Block Garage Sale". She needs to know who gets the money from each sold item, a suggested selling price, a "do not take less than" price, what it was and who has to take it back if it does not sell!

A tag with a "B.A.R." number and a penciled in "price" and your trusty 2068 can do it all as well as help print out the recap for each seller too.

One mistake that may be tempted to make is to try to "convert" to decimal. Why? The 2068 will already sort so that #000a will automatically precede #000b and

follow #000Z. Just use the next logical entry for the next needed item and let your computer do the sorting.

I use a first line (you may use a field in your database) with something like, #00c2 as the very first entry and a customer code on the second line (again you may use a field) now I can sort by item or by customer code or by any other data that is in the file. When this item is sold I edit the very first symbol to be a \$ instead of a # and the computer sorts it to the back of the list and I can use it for a reorder listing or a sales total list sorted by sustomer or supplier as I wish.

The uses are many!



-NOTICE-

Opinions expressed in articles are not necessarily those of members of the Clackamas Computer Applied Training Society. Meeting minutes carry the consensus of members present at meeting. This newsletter nor staff will not be held liable for any damage or consequences due to following instructions, or review of products as contained in this newsletter

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